

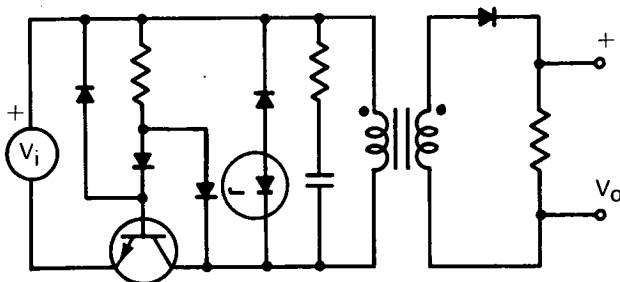
NASA TECH BRIEF



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A Transformer of Closely Spaced Pulsed Waveforms

On occasion there is a need to transform repeated positive or negative voltage pulses with dc isolation from load-to-source and load-to-load. In a conventional pulse transformer, pulse spacing is limited by the ability of the flux in the core to return to its initial value before the arrival of the next pulse. Thus in the case of closely spaced positive or negative pulses, the conventional transformer is driven toward magnetic saturation and cannot be used.



Pulse Transformer Circuit

A new passive circuit which has been constructed using diodes, transistors, and magnetic cores will transform the voltage of repetitive positive or negative pulses. This circuit combines a pulse transformer with switching devices to effect a resonant flux reset. It can transform various pulsed waveforms that have a nonzero average value and are relatively closely spaced in time. In particular, this circuit transforms the average value of the input waveform. Its only power source is the pulse source; its output had no dc voltage offset and provides the isolation of a transformer.

Experimental circuits have demonstrated the feasibility of transmitting hundreds of watts to resistive

loads while operating at greater than 50 percent duty factor. Two single polarity circuits could be combined to transform both positive and negative pulses with the same circuit.

Notes:

1. The following documentation may be obtained from:

Clearinghouse for Federal Scientific
and Technical Information
Springfield, Virginia 22151
Single document price \$3.00
(or microfiche \$0.65)

Reference:

NASA-TN - D-5473 (N69-38776), A
Transformer of Closely Spaced Pulsed
Waveforms Having a Nonzero Average
Value

2. Technical questions may be directed to:
Technology Utilization Officer
Lewis Research Center
21000 Brookpark Road
Cleveland, Ohio 44135
Reference: B70-10351

Patent status:

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